

Amendment submitted in response
to Office Action mailed 12/07/2004
U.S. Pat App. No. 10/813,913
March 4, 2005
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Amendments to the Specification:

Please replace paragraphs [0001], [0003], [0028], and [0029] with the following identically numbered paragraphs:

[0001] The present invention relates in general to substrate manufacturing technologies and in particular to methods and apparatus ~~methods and apparatus~~ for inspecting contact openings in a plasma processing system.

[0003] In an exemplary plasma process, a substrate is coated with a thin film of hardened emulsion (i.e., such as a photoresist mask) prior to etching. Areas of the hardened emulsion are then selectively removed, causing components of the underlying layer to become exposed. The substrate is then placed in a plasma processing chamber on a substrate support structure comprising a mono-polar or bi-polar electrode, called a chuck or pedestal. Appropriate etchant source ~~are then flowe~~d into the chamber and is struck to form a plasma to etch exposed areas of the substrate.

[0028] The invention relates, in one embodiment, in a plasma processing system, to a method of inspecting a contact opening of a contact formed in a first layer of the substrate to determine whether the contact opening reaches a metal layer that is disposed below the first layer. The method includes flowing a gas mixture into a plasma reactor of the plasma processing system, the gas mixture comprising a flow of a chlorine containing gas. The method also includes striking a plasma from the gas mixture; and exposing the contact to the plasma. The method further includes detecting whether metal chloride is present ~~is~~ in the contact opening after the exposing.

[0029] The invention relates, in one embodiment, in a plasma processing system, to an apparatus for inspecting a contact opening of a contact formed in a first layer of the substrate to determine whether the contact opening reaches a metal layer that is disposed below the first layer. The apparatus includes a means of flowing a gas mixture into a plasma reactor of the plasma processing system, the gas mixture comprising a flow of a chlorine containing gas. The apparatus also includes a means of striking a plasma from the gas mixture; and a means of

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exposing the contact to the plasma. The apparatus further includes a means of detecting whether metal chloride is present ~~is~~ in the contact opening after the exposing.